SLOVENSKI STANDARD
SIST EN 15208:2014

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Nadomešča:
SIST EN 15208:2007

Cisterne za prevoz nevarnega blaga - Sistemi za dostavo zapečatenih razdelkov - Načini delovanja in specifikacije za vmesnike

Tanks for transport of dangerous goods - Sealed parcel delivery systems - Working principles and interface specifications

Tanks für die Beförderung gefährlicher Güter - Versiegelte Transportsysteme - Arbeitsgrundlagen und Schnittstellenfestlegungen

Citernes destinées au transport de matières dangereuses - Systèmes de livraison par cargaisons scellées - Principes de fonctionnement et spécification des interfaces

Ta slovenski standard je istoveten z: **EN 15208:2014**

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EUROPEAN STANDARD

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Tanks for transport of dangerous goods - Sealed parcel delivery systems - Working principles and interface specifications

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Contents

Page

Foreword

This document (EN 15208:2014) has been prepared by Technical Committee CEN/TC 296 “Tanks for transport of dangerous goods”, the secretariat of which is held by AFNOR.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by November 2014 and conflicting national standards shall be withdrawn at the latest by November 2014.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN [and/or CENELEC] shall not be held responsible for identifying any or all such patent rights.

This document supersedes EN 15208:2007.

According to edition EN 15208:2007 the following fundamental changes are given:

— Annex B revised;

— Annex D deleted;

— referred standards updated.

This document forms part of a coherent standards programme comprising the following standards:

— EN 13616, *Overfill prevention devices for static tanks for liquid petroleum fuels*

— EN 13922, *Tanks for transport of dangerous goods — Service equipment for tanks — Overfill prevention systems for liquid fuels*

— EN 14116, *Tanks for transport of dangerous goods — Digital interface for product recognition devices for liquid fuels*

— EN 15207, *Tanks for transport of dangerous goods — Plug/socket connection and supply characteristics for service equipment in hazardous areas with 24 V nominal supply voltage*

— EN 15969-1, *Tanks for transport of dangerous goods — Digital interface for the data transfer between tank vehicle and with stationary facilities — Part 1: Protocol specification — Control, measurement and event data*

— EN 15969-2, *Tanks for transport of dangerous goods — Digital interface for the data transfer between tank vehicle and with stationary facilities — Part 2: Commercial and logistic data*

This document is applicable for tanks according to ADR [1].

According to the CEN-CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

Introduction

Sealed parcel delivery systems, the subject of this European Standard, provide information concerning the content and the status of each compartment, used to transfer liquid fuels from loading gantries to delivery points, and optionally, the delivered quantities.

SPDS may be suitable for other application, e.g. sealed transfer of products subject to duties.

Sealed parcel delivery systems may be classified according to:

— the combination of functions implemented by the system;

— the way the functions are implemented (“type of function”).

Sealed parcel delivery systems are not measuring instruments but they may be ancillary devices as defined in OIML R 117 [2].

1 Scope

This European Standard is applicable to sealed parcel delivery systems used with transport tanks and specifies the performance requirements, critical safety aspects, data transfer methods between loading gantries and transport tank, transport tank and delivery points, other optional communications and tests to provide functional and compatible systems.

Sealed parcel delivery systems covered by this European Standard is for bottom loaded transport tanks.

The systems specified by this European Standard are suitable for use with liquid petroleum products and other dangerous substances of Class 3 of ADR which have a vapour pressure not exceeding 110 kPa at 50 °C and petrol, and which have no sub-classification as toxic or corrosive.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 12266-1:2012, *Industrial valves - Testing of metallic valves - Part 1: Pressure tests, test procedures and acceptance criteria - Mandatory requirements*

EN 12266-2, *Industrial valves - Testing of metallic valves - Part 2: Tests, test procedures and acceptance criteria - Supplementary requirements*

EN 13082, *Tanks for transport of dangerous goods - Service equipment for tanks - Vapour transfer valve*

EN 13083, *Tanks for transport of dangerous goods - Service equipment for tanks - Adaptor for bottom loading and unloading*

EN 13094, *Tanks for the transport of dangerous goods - Metallic tanks with a working pressure not exceeding 0,5 bar - Design and construction*

EN 13308, *Tanks for transport of dangerous goods - Service equipment for tanks - Non pressure balanced footvalve*

EN 13314, *Tanks for transport of dangerous goods - Service equipment for tanks - Fill hole cover*

EN 13316, *Tanks for transport of dangerous goods - Service equipment for tanks - Pressure balanced footvalve*

EN 13317, *Tanks for transport of dangerous goods - Service equipment for tanks - Manhole cover assembly*

EN 13616, *Overfill prevention devices for static tanks for liquid petroleum fuels*

EN 13922, *Tanks for transport of dangerous goods - Service equipment for tanks - Overfill prevention systems for liquid fuels*

EN 14025, *Tanks for the transport of dangerous goods - Metallic pressure tanks - Design and construction*

EN 14116, *Tanks for transport of dangerous goods - Digital interface for product recognition devices for liquid fuels*

EN 14564, *Tanks for transport of dangerous goods - Terminology*

EN 14595, *Tanks for transport of dangerous goods - Service equipment for tanks - Pressure and Vacuum Breather Vent*

EN 14596, *Tanks for transport of dangerous goods - Service equipment for tanks - Emergency pressure relief valve*

EN ISO 3166-1, *Codes for the representation of names of countries and their subdivisions - Part 1: Country codes (ISO 3166-1)*

ISO/IEC 7816-1, *Identification cards - Integrated circuit cards - Part 1: Cards with contacts - Physical characteristics*

ISO/IEC 7816-2, *Identification cards - Integrated circuit cards - Part 2: Cards with contacts - Dimensions and location of the contacts*

ISO/IEC 7816-3:2006, *Identification cards - Integrated circuit cards - Part 3: Cards with contacts - Electrical interface and transmission protocols*

ISO/IEC 7816-4:2013, *Identification cards - Integrated circuit cards - Part 4: Organization, security and commands for interchange*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

3.1
access port
port through which it is possible to access to cargo and/or to change the physical characteristics of the parcel

3.2
bottom loading
according to EN 14564

3.3
cargo
product contained within a parcel

3.4
clingage
quantity of product that remains adhering to the parcel's internal surfaces after a complete delivery

3.5
compartment
<tanks for transport of dangerous goods> vessel closed by a foot valve, vapour transfer valve and a manhole cover assembly

3.6
delivery
complete operation performed at a station to discharge products from one or more compartments into one or more tanks including a start and a finish phase

3.7
depot
terminal
site of the products to be loaded onto the tank vehicles and the location of the loading facilities

3.8
depot session
time period covering the complete loading of the tank vehicle, starting at the beginning of the loading procedure and ending with the final loading or transfer operation

3.9
device for the transfer of measured quantities
DTMQ
all the equipment contained within a system that permits the secure transfer of metrological data between the loading rack, the tank vehicle and the delivery or transfer station

3.10
empty parcel
parcel in which no product is present except clingage

3.11
equipment port
port through which only access to cargo is possible

3.12
frustrated delivery
delivery of a parcel which does not result in an empty parcel

3.13
guaranteed cargo
sum of measured quantities transferred into a sealed parcel under guaranteed routing where parcel emptiness has been previously automatically identified

Note 1 to entry: In this case, the cargo within a parcel is equal to the guaranteed cargo.

3.14
guaranteed delivered volume
volume of product passing a port of a parcel enabling the parcel to be empty (transferring point)

3.15
guaranteed routing
routing that is satisfactorily completed under routing control

3.16
guaranteed transport
transportation of a guaranteed cargo or a minimum guaranteed cargo or an automatically detected empty parcel

3.17
maximum guaranteed volume
fill capacity of a compartment which corresponds to 97 % of the compartment's total capacity

3.18
maximum sealable quantity
maximum volume of product which can be guaranteed by the parcel

3.19
measured quantity routed
product quantity as routed into a parcel which has been measured by an approved metering system

3.20
measurement cycle
time period between the connection and the disconnection of a loading arm onto a parcel

3.21
measurement number
non-repeating sequence number (incrementing from 1) assigned to each measurement cycle when a measured quantity routed is available

3.22
metrological data
data that includes product quantities and is used for metrological purposes

3.23
minimum guaranteed cargo
sum of measured quantities transferred into a sealed parcel under guaranteed routing

Note 1 to entry: The cargo within a parcel may be greater than its minimum guaranteed cargo.

3.24
monitored port
port whose closed position is checked automatically

3.25
non-guaranteed cargo
condition of a guaranteed cargo or a minimum guaranteed cargo once the parcel has been unsealed

3.26
operational port
port which permits cargo transfer to or from the parcel in normal operation and through which it is not possible to change the physical characteristics of the parcel

3.27
parcel
compartment(s) and all associated pipes and equipment, including its ports

Note 1 to entry: This here defined term “parcel” should not be confused with the term in the packaging practice.

3.28
permanently closed port
port which can only be opened by destroying it

3.29
port
<tanks for transport of dangerous goods> any inlet or outlet connection or hole in a parcel

3.30
return facility
facility dedicated to the handling of product returns

Note 1 to entry: This facility may include means to measure the returned volume.

3.31
returns
undelivered product left in the parcel

3.32
routing
transfer of a measured product quantity into a parcel

3.33
routing control
control method used to ensure that the total measured quantity is transferred into the parcel

3.34
sealed parcel
one whose ports are monitored closed by either mechanical or electronic devices or are permanently closed

3.35
sealed parcel delivery
SPD
process where a measured quantity of product is loaded into a parcel which is then sealed, controlled during transportation and discharged without the need for further measurement

3.36
sealed parcel delivery system
SPDS
instrumentation system that controls the seal status of a parcel

3.37
sealed port
port which cannot be opened without the destruction of its mechanical seal

3.38
secured port
port through which no product can be transferred even when it is open

3.39
station
<tanks for transport of dangerous goods> any discharge site, delivery point but particularly petrol filling stations

3.40
tank vehicle
according to EN 14564

3.41
top-up loading
adding of additional product to a parcel that, although containing product, is not full

3.42
transaction
<tanks for transport of dangerous goods> successful loading or delivery of a minimum guaranteed cargo or a guaranteed cargo

3.43
transfer station
set of measurement, pumping, and associated hoses and/or loading arms installed to enable the transfer of measured product between parcels of a tank vehicle(s)

3.44
unknown cargo
contents of a parcel which is not defined by either a minimum guaranteed cargo, a guaranteed cargo or a non-guaranteed cargo

3.45
wet leg sensor
liquid sensor(s) which detect the emptiness of the pipe(s)

3.46
compartment's total capacity
maximum volume capable of being loaded into the compartment without any product release or escape

4 Aims (functions) of SPDS

4.1 Minimum aim for delivery

— Check status of each parcel before loading;

— secure the transfer of product from the measuring set to each relevant parcel;

— acquire and transmit to receiver the product grades and quantities loaded per parcel;

— control the sealed status of each parcel during transport;

— confirm emptiness of each parcel after delivery or follow procedure of frustrated delivery.

4.2 Minimum aim for frustrated delivery

The aim of 4.1 plus:

— secure the return of non-delivered product to return facility;

— acquire and transmit to receiver the quantities of non-delivered product per parcel, if required.

4.3 Minimum aim for unattended delivery (optional)

The aim of 4.1 plus:

— give suitable insurance that the quantity is fairly delivered (e.g. location of petrol station or tank within the petrol station, product grade);

— minimise the risk of accidental or fraudulent withdrawal of liquid;

— allow the retrieval of measuring data until the settlement of the transaction.

4.4 Minimum aim for unattended frustrated delivery (optional)

The aim of 4.2 and 4.3 plus:

— automatic recognition of the end of delivery.

5 Functionality

5.1 General

The functions of the systems shall be according to Table 1.

Table 1 — Functions

Functions	Annex A DTMQ 4.1 to 4.4 and Welmec [3]	Annex B PID/PRD 4.1 to 4.4 Welmec optional [3]	Annex C Paper 4.1 and 4.2 no Welmec [3]
Measuring results indication	yes	option	no
Seal breakage	yes	yes	yes
Loading arm identification	yes	yes	no
Receiver tank identification	option	yes	no
Location device	option	option	no
Product grade at loading	yes	yes	no
Product grade at discharge	option	yes	no
Guaranteed volume	option	option	no
Receiver loading data	yes	option	no
Data transfer receiver	option	option	no
Transaction recording	yes	option	no
Non transaction event recording	yes	yes	yes
Volume change detection	option	option	no

This clause describes the requirements of the different functions that can be provided by a SPDS.

5.2 Data

5.2.1 Recording

5.2.1.1 Transaction recording

The SPDS shall be provided with a means of keeping track of all transactions. This recording shall be available until the settlement of the transaction has been completed, but for a minimum time period of 15 days.

As a minimum, the following transaction data per parcel shall be recorded:

— date and time of the transaction;

— product quantity;

— product grade;

— special conditions e.g. empty, not empty;

— guaranteed or non-guaranteed cargo.

It is not required that the loaded quantity be recorded in the SPDS at the moment of sealing.

5.2.1.2 Non transaction event recording

Events, such as sealing, re-sealing, breaking of a seal or changing the status of a parcel, shall be recorded in an electronic memory.

The record shall include the time and date of the event.

These events may be recorded in a summary if the transaction has been completed.

If an automatic empty detection is available any change of the status shall be considered as an event.

5.2.2 Display

The secured status of each compartment shall be clearly visible and unambiguous.

— Measuring results indication

The volume and status of the cargo as presented to the receiver shall be displayed, printed or otherwise securely transferred to the interested parties.

— Guaranteed volume

The volume of the cargo delivered to a station shall be displayed, printed or otherwise securely transferred to the interested parties.

5.2.3 Data transfer methods

Data transfer methods to be used at the loading rack and on the station are described in Annex A, Annex B or Annex C.

5.2.4 Integrity of the data

The data transfer and recording shall be safe against interference and manipulation. Errors shall be detected.

5.2.5 System identification

Systems using data communication shall have permanently installed identification devices to determine the proper method of communication.

5.3 Loading

5.3.1 Empty status

The status of the parcel shall be available prior to loading.

If the parcel is not empty the top-up procedures in the applicable annexes shall be followed.

5.3.2 Routing

Secured transfer of product shall be achieved by:

— ensuring that no product is diverted between the transfer point of the metering set and the routing port of the parcel;

— ensuring that no product is lost from the parcel during loading;

— the complete sealing of the loaded parcel shall be activated within a time scale that makes fraud or withdrawal of product impossible without detection.

The SPDS shall be able to detect or identify which loading arm either is or was connected to which parcel. Identification may be done directly or indirectly.

The SPDS shall be able to identify which product grade is about to be loaded or has been loaded into a parcel. Acquisition of product grade may be done directly or indirectly.

The SPDS shall be able to exchange data with the depot. Loading data shall contain at least volume and product grade. Data exchange may be done directly or indirectly.

5.4 Delivery

5.4.1 Attended delivery

The status of all parcels shall be presented to the receiver along with the allocated cargoes.

If the sealed status is not given an individual procedure should be defined.

All delivered parcels shall be presented empty after delivery. Otherwise see 5.5.

No product shall be diverted between the parcel and the receiving tank.

5.4.2 Unattended delivery

The minimum requirements are:

— automatic station identification;

— automatic empty detection;

— a method to transmit securely to the station product grade and volume.

Additional requirements may be:

— verification of volume which shall be delivered against the available ullage in the tank;

— automatic tank identification;

— confirmation that volume was delivered into the correct receivers tank.

5.5 Frustrated delivery

5.5.1 Station

The return of non-delivered product shall be secured by recording

— date and time of last resealing of the relevant parcels before transfer of return;

— date and time of end of last delivery at the station, either confirmed by the receiver signature or automatically generated.

The return discharge shall be carried out in accordance with 5.5.2.